SEQUENCE LISTING

<110> Webb, Susan R.
      Winqvist, Ola
      Karlsson, Lars
      Jackson, Michael R.
      Peterson, Per A.

<120> MHC Class II Antigen Presenting Systems
      and Methods for Activating CD4+ T Cells

<130> TSRI 536.1

<140> US 09/194,285
<141> 1999-04-12

<150> PCT/US97/08697
<151> 1997-05-22

<150> US 60/018,175
<151> 1996-05-23

<160> 56

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 740
<212> DNA
<213> Drosophila melanogaster

<400> 1
```
attcgatgca cactcacatt cttctcctaa tacgataata aaactttcca tgaaaaatat 60
ggaaaaatat atgaaaattg agaaatccaa aaaactgata aacgctctac ttaattaaaa 120
tagataaatg ggagcggctg gaatggcgga gcatgaccaa gttcctccgc caatcagtcg 180
taaaacagaa gtcgtggaaa gcggatagaa agaatgttcg atttgacggg caagcatgtc 240
tgctatgtgg cggattgcgg aggaattgca ctggagacca gcaaggttct catgaccaag 300
aatatagcgg tgtgagtgag cgggaagctc ggtttctgtc cagatcgaac tcaaaactag 360
tccagccagt cgctgtcgaa actaattaag ttaatgagtt tttcatgtta gtttcgcgct 420
gagcaacaat taagtttatg tttcagttcg gcttagattt cgctgaagga cttgccactt 480
tcaatcaata ctttagaaca aaatcaaaac tcatcctaat agcttggtgt tcatcttttt 540
ttttaatgat aagcattttg tcgtttatac tttttatatt tcgatattaa accacctatg 600
aagttcattt taatcgccag ataagcaata tattgtgtaa atatttgtat tctttatcag 660
gaaattcagg gagacgggga agttactatc tactaaaagc caaacaattt cttacagttt 720
tactctctct actctagagt                                          740
```

<210> 2
<211> 427
<212> DNA
<213> Drosophila melanogaster

<400> 2
```
aattcgttgc aggacaggat gtggtgcccg atgtgactag ctcttgctg caggccgtcc 60
tatcctctgg ttccgataag agacccagaa ctccggcccc ccacgccca ccgccacccc 120
catacatatg tggtacgcaa gtaagagtgc ctgcgcatgc cccatgtgcc ccaccaagag 180
ttttgcatcc catacaagtc cccaaagtgg agaaccgaac caattcttcg cgggcagaac 240
aaaagcttct gcacacgtct ccactcgaat ttggagccgg ccggcgtgtg caaaagaggt 300
```

-1-

```
gaatcgaacg aaagacccgt gtgtaaagcc gcgtttccaa aatgtataaa accgagagca 360
tctggccaat gtgcatcagt tgtggtcagc agcaaaatca agtgaatcat ctcagtgcaa 420
ctaaagg                                                           427
```

```
<210> 3
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 3
cttgaattcc accatgccgt gcagcagagc tctga                            35

<210> 4
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 4
tttggatcct cataaaggcc ctgggtgtc                                   29

<210> 5
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 5
cttgaattcc accatggctc tgcagatccc ca                               32

<210> 6
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 6
tttggatcct cactgcagga gccctgct                                    28

<210> 7
<211> 4713
<212> DNA
<213> Mus musculis

<400> 7
gcgttgcagg acaggatgtg gtgcccgatg tgactagctc tttgctgcag gccgtcctat 60
cctctggttc cgataagaga cccagaactc cggcccccca ccgcccaccg ccacccocat 120
acatatgtgg tacgcaagta agagtgcctg cgcatgcccc atgtgcccca ccaagagttt 180
tgcatcccat acaagtcccc aaagtggaga accgaaccaa ttcttcgcgg gcagaacaaa 240
agcttctgca cacgtctcca ctcgaatttg gagccggccg gcgtgtgcaa aagaggtgaa 300
```

-2-

```
tcgaacgaaa gacccgtgtg taaagccgcg tttccaaaat gtataaaacc gagagcatct 360
ggccaatgtg catcagttgt ggtcagcagc aaaatcaagt gaatcatctc agtgcaacta 420
aaggggggaa ttcctgcaga gacctcccag agaccaggat gccgtgcagc agagctctga 480
ttctgggggt cctcgccctg aacaccatgc tcagcctctg cggaggtgaa gacgacattg 540
aggccgacca cgtaggcttc tatggtacaa ctgtttatca gtctcctgga gacattggcc 600
agtacacaca tgaatttgat ggtgatgagt tgttctatgt ggacttggat aagaagaaaa 660
ctgtctggag gcttcctgag tttggccaat tgatactctt tgagccccaa ggtggactgc 720
aaaacatagc tgcagaaaaa cacaacttgg gaatcttgac taagaggtca aatttcaccc 780
cagctaccaa tgaggctcct caagcgactg tgttccccaa gtcccctgtg ctgctgggtc 840
agcccaacac ccttatctgc tttgtggaca acatcttccc acctgtgatc gaccagcttc ctcgtcaacc 960
ggctcaggaa tagcaagtca gtcacagacg gcgtttatga gaccagcttc ctcgtcaacc 960
gtgaccattc cttccacaag ctgtcttatc tcaccttcat cccttctgat gatgacattt 1020
atgactgcaa ggtggagcac tggggcctgg aggagccggt tctgaaacac tgggaacctg 1080
agattccagc cccatgtca gagctgacag aaactgtggt gtgtgccctg gggttgtctg 1140
tgggccttgt gggcatcgtg gtgggcacca tcttcatcat tcaaggcctg cgatcaggtg 1200
gcacctccag acacccaggg cctttatgag tcacaccctg gaaaggaagg tgtgtgtccc 1260
tcttcatgga agaagtggtg ttctgggtgt cgaattcgag ctcggtaccc ggggatcctc 1320
tagagtcgac ctgcaggcat gcaattcgat gcacactcac attcttctcc taatacgata 1380
ataaaacttt ccatgaaaaa tatggaaaaa tatatgaaaa ttgagaaatc caaaaaactg 1440
ataaacgctc tacttaatta aaatagataa atgggagcgg caggaatggc ggagcatggc 1500
caagttcctc cgccaatcag tcgtaaaaca gaagtcgtgg aaagcggata gaaagaatgt 1560
tcgatttgac gggcaagcat gtctgctatg tggcggattg cggaggaatt gcactggaga 1620
ccagcaaggt tctcatgacc aagaatatag cggtgagtga gcgggaagct cggtttctgt 1680
ccagatcgaa ctcaaaacta gtccagccag tcgctgtcga aactaattaa gtaaatgagt 1740
ttttcatgtt agtttcgcgc tgagcaacaa ttaagtttat gtttcagttc ggcttagatt 1800
tcgctgaagg acttgccact ttcaatcaat actttagaac aaaatcaaaa ctcattctaa 1860
tagcttggtg ttcatctttt tttttaatga taagcatttt gtcgtttata cttttttatat 1920
ttcgatatta aaccacctat gaagttcatt ttaatcgcca gataagcaat atattgtgta 1980
aatatttgta ttctttatca ggaaattcag ggagacgggg aagttactat ctactaaaag 2040
ccaaacaatt tcttacagtt ttactctctc tactctagag cttggcactg gccgtcgttt 2100
tacaacgtcg tgactgggaa aaccctggcg ttacccaact taatcgcctt gcagcacatc 2160
cccctttcgc cagctggcgt aatagcgaag aggcccgcac cgatcgccct tcccaacagt 2220
tgcgcagcct gaatggcgaa tggcgcctga tgcggtattt tctccttacg catctgtgcg 2280
gtatttcaca ccgcatatgg tgcactctca gtacaatctg ctctgatgcc gcatagttaa 2340
gccagccccg acacccgcca cacccgctg acgcgccctg acgggcttgt ctgctcccgg 2400
catccgctta cagacaagct gtgaccgtct ccgggagctg catgtgtcag aggttttcac 2460
cgtcatcacc gaaacgcgcg agacgaaagg gcctcgtgat acgcctattt ttataggtta 2520
atgtcatgat aataatggtt tcttagacgt caggtggcac ttttcgggga aatgtgcgcg 2580
gaacccctat ttgtttattt ttctaaatac attcaaatat gtatccgctc atgagacaat 2640
aaccctgata aatgcttcaa taatattgaa aaaggaagag tatgagtatt caacatttcc 2700
gtgtcgccct tattcccttt tttgcggcat tttgccttcc tgtttttgct cacccagaaa 2760
cgctggtgaa agtaaaagat gctgaagatc agttgggtgc acgagtgggt tacatcgaac 2820
tggatctcaa cagcggtaag atccttgaga gttttcgccc cgaagaacgt tttccaatga 2880
tgagcacttt taaagttctg ctatgtggcg cggtattatc ccgtattgac gccgggcaag 2940
agcaactcgg tcgccgcata cactattctc agaatgactt ggttgagtac tcaccagtca 3000
cagaaaagca tcttacggat ggcatgacag taagagaatt atgcagtgct gccataacca 3060
tgagtgataa cactgcggcc aacttacttc tgacaacgat cggaggaccg aaggagctaa 3120
ccgctttttt gcacaacatg ggggatcatg taactcgcct tgatcgttgg gaaccggagc 3180
tgaatgaagc cataccaaac gacgagcgtg acaccacgat gcctgtagca atggcaacaa 3240
cgttgcgcaa actattaact ggcgaactac ttactctagc ttcccggcaa caattaatag 3300
actggatgga ggcggataaa gttgcaggac cacttctgcg ctcggccctt ccggctggct 3360
ggtttattgc tgataaatct ggagccggtg agcgtgggtc tcgcggtatc attgcagcac 3420
tggggccaga tggtaagccc tcccgtatcg tagttatcta cacgacgggg agtcaggcaa 3480
ctatggatga acgaaataga cagatcgctg ataggtgcc ctcactgatt aagcattggt 3540
aactgtcaga ccaagtttac tcatatatac tttagattga tttaaaactt catttttaat 3600
ttaaaggat ctaggtgaag atccttttgt ataatctcat gaccaaaatc ccttaacgtg 3660
agttttcgtt ccactgagcg tcagacccg tagaacaaaaa accaccgcta ccagcggtgg 3780
ctttttttct gcgcgtaatc tgctgcttgc aaacaaaaaa accaccgcta ccagcggtgg 3780
tttgtttgcc ggatcaagag ctaccaactc tttttccgaa ggtaactggc ttcagcagag 3840
```

-3-

```
cgcagatacc aaatactgtc cttctagtgt agccgtagtt aggccaccac ttcaagaact 3900
ctgtagcacc gcctacatac ctcgctctgc taatcctgtt accagtggct gctgccagtg 3960
gcgataagtc gtgtcttacc gggttggact caagacgata gttaccggat aaggcgcagc 4020
ggtcgggctg aacggggggt tcgtgcacac agcccagctt ggagcgaacg acctacaccg 4080
aactgagata cctacagcgt gagcattgag aaagcgccac gcttcccgaa gggagaaagg 4140
cggacaggta tccggtaagc ggcagggtcg gaacaggaga gcgcacgagg gagcttccag 4200
ggggaaacgc ctggtatctt tatagtcctg tcgggtttcg ccacctctga cttgagcgtc 4260
gattttttgtg atgctcgtca ggggggcgga gcctatggaa aaacgccagc aacgcggcct 4320
ttttacggtt cctggccttt tgctggcctt ttgctcacat gttctttcct gcgttatccc 4380
ctgattctgt ggataaccgt attaccgcct ttgagtgagc tgataccgct cgccgcagcc 4440
gaacgaccga gcgcagcgag tcagtgagcg aggaagcgga agagcgccca atacgcaaac 4500
cgcctctccc cgcgcgttgg ccgattcatt aatgcagctg gcacgacagg tttcccgact 4560
ggaaagcggg cagtgagcgc aacgcaatta atgtgagtta gctcactcat taggcacccc 4620
aggctttaca ctttatgctt ccggctcgta tgttgtgtgg aattgtgagc ggataacaat 4680
ttcacacagg aaacagctat gaccatgatt acg 4713
```

<210> 8
<211> 4724
<212> DNA
<213> Mus musculis

<400> 8
```
gcgttgcagg acaggatgtg gtgcccgatg tgactagctc tttgctgcag gccgtcctat 60
cctctggttc cgataagaga cccagaactc cggcccccca ccgcccaccg ccaccccat 120
acatatgtgg tacgcaagta agagtgcctg cgcatgcccc atgtgcccca ccaagagttt 180
tgcatcccat acaagtcccc aaagtggaga accgaaccaa ttcttcgcgg gcagaacaaa 240
agcttctgca cacgtctcca ctcgaatttg gagccggccg gcgtgtgcaa aagaggtgaa 300
tcgaacgaaa gacccgtgtg taaagccgcg tttccaaaat gtataaaacc gagagcatct 360
ggccaatgtg catcagttgt ggtcagcagc aaaatcaagt gaatcatctc agtgcaacta 420
aagggggggaa ttccctgctg tgccctagag atggctctgc agatcccag cctcctcctc 480
tcagctgctg tggtggtgct gatggtgctg agcagcccag ggactgaggg cggaaactcc 540
gaaaggcatt tcgtggtcca gttcaagggc gagtgctact acaccaacgg gacgcagcgc 600
atacggctcg tgaccagata catctacaac cgggaggagt acgtgcgcta cgacagcgac 660
gtgggcgagt accgcgcggt gaccgagctg gggcggccag acgccgagta ctggaacagc 720
cagccggaga tcctggagcg aacgcgggcc gaggtggaca cggcgtgcag acacaactac 780
gaggggccgg agaccagcac ctccctgcgg cggcttgaac agcccaatat cgccatctcc 840
ctgtccagga cagaggccct caaccaccac aacactctgg tctgttcggt gacagatttc 900
tacccagcca agatcaaagt gcgctggttc aggaatggcc aggaggagac agtggggggtc 960
tcatccacac agcttattag gaatggggac tggaccttcc aggtcctggt catgctggag 1020
atgacccctc atcagggaga ggtctacacc tgccatgtgg agcatcccag cctgaagagc 1080
cccatcactg tggagtggag ggcacagtcc gagtctgccc ggagcaagat gttgagcggc 1140
atcgggggct gcgtgcttgg ggtgatcttc ctcgggctcg gccttttcat ccgtcacagg 1200
agtcagaaag gacctcgagg ccctcctcca gcagggctcc tgcagtgact cagagtgttt 1260
tgactcagtt gactgtctca gactgtaaga cctacatgtc tcgaattcga gctcggtacc 1320
cggggatcct ctagagtcga cctgcaggca tgcaattcga tgcacactca cattcttctc 1380
ctaatacgat aataaaactt tccatgaaaa atatggaaaa atatatgaaa attgagaaat 1440
ccaaaaaact gataaacgct ctacttaatt aaaatagata aatgggagcg gcaggaatgg 1500
cggagcatgg ccaagttcct ccgccaatca gtcgtaaaac agaagtcgtg gaaagcggat 1560
agaaagaatg ttcgatttga cgggcaagca tgtctgctat gtggcggatt gcggaggaat 1620
tgcactggag accagcaagg ttctcatgac caagaatata gcggtgagtg agcgggaagc 1680
tcggtttctg tcagatcga actcaaaact agtccagcca gtcgctgtcg aaactaatta 1740
agtaaatgag tttttcatgt tagtttcgcg ctgagcaaca attaagttta tgtttcagtt 1800
cggcttagat ttcgctgaag gacttgccac tttcaatcaa tactttagaa caaaatcaaa 1860
actcattcta atagcttggt gttcatcttt ttttttaatg ataagcattt tgtcgtttat 1920
acttttttata tttcgatatt aaaccaccta tgaagttcat tttaatcgcc agataagcaa 1980
tatattgtgt aaatatttgt attctttatc aggaaattca gggagacggg gaagttacta 2040
tctactaaaa gccaaacaat ttcttacagt tttactctct ctactctaga gcttggcact 2100
ggccgtcgtt ttacaacgtc gtgactggga aaaccctggc gttacccaac ttaatcgcct 2160
tgcagcacat ccccctttcg ccagctggcg taatagcgaa gaggcccgca ccgatcgccc 2220
```

-4-

```
ttcccaacag ttgcgcagcc tgaatggcga atggcgcctg atgcggtatt ttctccttac 2280
gcatctgtgc ggtatttcac accgcatatg gtgcactctc agtacaatct gctctgatgc 2340
cgcatagtta agccagcccc gacacccgcc aacacccgct gacgcgccct gacgggcttg 2400
tctgctcccg gcatccgctt acagacaagc tgtgaccgtc tccgggagct gcatgtgtca 2460
gaggttttca ccgtcatcac cgaaacgcgc gagacgaaag ggcctcgtga tacgcctatt 2520
tttataggtt aatgtcatga taataatggt ttcttagacg tcaggtggca cttttcgggg 2580
aaatgtgcgc ggaacccta tttgtttatt tttctaaata cattcaaata tgtatccgct 2640
catgagacaa taaccctgat aaatgcttca ataatattga aaaaggaaga gtatgagtat 2700
tcaacatttc cgtgtcgccc ttattccctt ttttgcggca ttttgccttc ctgtttttgc 2760
tcacccagaa acgctggtga aagtaaaaga tgctgaagat cagttgggtg cacgagtggg 2820
ttacatcgaa ctggatctca acagcggtaa gatccttgag agttttcgcc ccgaagaacg 2880
ttttccaatg atgagcactt ttaaagttct gctatgtggc gcggtattat cccgtattga 2940
cgccgggcaa gagcaactcg gtcgccgcat acactattct cagaatgact tggttgagta 3000
ctcaccagtc acagaaaagc atcttacgga tggcatgaca gtaagagaat tatgcagtgc 3060
tgccataacc atgagtgata acactgcggc caacttactt ctgacaacga tcggaggacc 3120
gaaggagcta accgctttt tgcacaacat gggggatcat gtaactcgcc ttgatcgttg 3180
ggaaccggag ctgaatgaag ccataccaaa cgacgagcgt gacaccacga tgcctgtagc 3240
aatggcaaca acgttgcgca aactattaac tggcgaacta cttactctag cttcccggca 3300
acaattaata gactggatgg aggcggataa agttgcagga ccacttctgc gctcggccct 3360
tccggctggc tggtttattg ctgataaatc tggagccggt gagcgtgggt ctcgcggtat 3420
cattgcagca ctggggccag atggtaagcc ctcccgtatc gtagttatct acacgacggg 3480
gagtcaggca actatggatg aacgaaatag acagatcgct gagataggtg cctcactgat 3540
taagcattgg taactgtcag accaagttta ctcatatata ctttagattg atttaaaact 3600
tcattttaa tttaaaagga tctaggtgaa gatcctttt gataatctca tgaccaaaat 3660
cccttaacgt gagttttcgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc 3720
ttcttgagat cctttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct 3780
accagcggtg gtttgtttgc cggatcaaga gctaccaact ctttttccga aggtaactgg 3840
cttcagcaga gcgcagatac caaatactgt ccttctagtg tagccgtagt taggccacca 3900
cttcaagaac tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc 3960
tgctgccagt ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga 4020
taaggcgcag cggtcgggct gaacggggg ttcgtgcaca cagcccagct tggagcgaac 4080
gacctacacc gaactgagat acctacagcg tgagcattga gaaagcgcca cgcttcccga 4140
agggagaaag gcggacaggt atccggtaag cggcagggtc ggaacaggag agcgcacgag 4200
ggagcttcca gggggaaacg cctggtatct ttatagtcct gtcgggtttc gccacctctg 4260
acttgagcgt cgatttttgt gatgctcgtc aggggggcgg agcctatgga aaaacgccag 4320
caacgcggcc tttttacggt tcctggcctt ttgctggcct tttgctcaca tgttctttcc 4380
tgcgttatcc cctgattctg tggataaccg tattaccgcc tttgagtgag ctgataccgc 4440
tcgccgcagc cgaacgaccg agcgcagcga gtcagtgagc gaggaagcgg aagagcgccc 4500
aatacgcaaa ccgcctctcc ccgcgcgttg gccgattcat taatgcagct ggcacgacag 4560
gtttcccgac tggaaagcgg gcagtgagcg caacgcaatt aatgtgagtt agctcactca 4620
ttaggcaccc caggctttac actttatgct tccggctcgt atgttgtgtg gaattgtgag 4680
cggataacaa tttcacacag gaaacagcta tgaccatgat tacg          4724
```

<210> 9
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 9
ccaccatggc cattagtgga gtc   23

<210> 10
<211> 29
<212> DNA
<213> Artificial Sequence

-5-

```
<220>
<223> synthesized

<400> 10                                                           29
tttggatcct tacagaggcc ccctgcgtt

<210> 11
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 11                                                           24
ccaccatggt gtgtctgagg ctcc

<210> 12
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 12                                                           29
tttggatcct cagctcagga atcctcttg

<210> 13
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 13                                                           28
ccaccatggt cctaaacaaa gctctgat

<210> 14
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 14                                                           30
tttggatcct cacaagggcc cttggtgtct

<210> 15
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 15
```

-6-

```
ccaccatggc ttggaagaag gccttt                                          26

<210> 16
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 16                                                              26
tttagatctc agtgcagaag cccttt

<210> 17
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 17                                                              25
ccaccatggg ccctgaagac agaat

<210> 18
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 18                                                              27
tttggatcct cacagggtcc cctgggc

<210> 19
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 19                                                              26
ccaccatggt tctgcaggtt tctgcg

<210> 20
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 20                                                              29
tttggatcct tatgcagatc ctcgttgaa

<210> 21
<211> 26
```

-7-

```
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 21                                                                    26
aagaattcac tagaggctag agccat

<210> 22
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 22                                                                    26
aaggatcctc acagggtgac ttgacc

<210> 23
<211> 2580
<212> DNA
<213> Artificial Sequence

<220>
<223> engineered recombinant

<400> 23
gcgttgcagg acaggatgtg gtgcccgatg tgactagctc tttgctgcag gccgtcctat 60
cctctggttc cgataagaga cccagaactc cggcccccca ccgcccaccg ccaccccat 120
acatatgtgg tacgcaagta agagtgcctg cgcatgcccc atgtgcccca ccaagagttt 180
tgcatcccat acaagtcccc aaagtggaga accgaaccaa ttcttcgcgg gcagaacaaa 240
agcttctgca cacgtctcca ctcgaatttg gagccggccg gcgtgtgcaa aagaggtgaa 300
tcgaacgaaa gacccgtgtg taaagccgcg tttccaaaat gtataaaacc gagagcatct 360
ggccaatgtg catcagttgt ggtcagcagc aaaatcaagt gaatcatctc agtgcaacta 420
aagggggggaa ttcgatctag aggctagagc catggatgac caacgcgacc tcatctctaa 480
ccatgagcaa ttgcccatac tgggcaaccg ccctagagag ccagaaaggt gcagccgtgg 540
agctctgtac accggtgttt ctgtcctggt ggctctgctc ttggctgggc aggccaccac 600
tgcttacttc ctgtaccagc aacagggccg cctagacaag ctgaccatca cctcccagaa 660
cctgcaactg gagagccttc gcatgaagct tccgaaatct gccaaacctg tgagccagat 720
gcggatggct actcccttgc tgatgcgtcc aatgtccatg gataacatgc tccttgggcc 780
tgtgaagaac gttaccaagt acggcaacat gacccaggac catgtgatgc atctgctcac 840
gaggtctgga cccctggagt acccgcagct gaaggggacc ttcccagaga atctgaagca 900
tcttaagaac tccatggatg gcgtgaactg gaagatcttc gagagctgga tgaagcagtg 960
gctcttgttt gagatgagca agaactccct ggaggagaag aagcccacag aggctccacc 1020
taaagagcca ctggacatgg aagacctatc ttctggcctg ggagtgacca ggcaggaact 1080
gggtcaagtc acctgtgaa gacagaggcc agcatcaagc ttatcgatac cgtcgacctg 1140
caggcatgca attcgatgca cactcacatt cttctcctaa tacgataata aaactttcca 1200
tgaaaaatat ggaaaaaatat atgaaaattg agaaatccaa aaaactgata aacgctctac 1260
ttaattaaaa tagataaatg ggagcggcag gaatggcgga gcatggccaa gttcctccgc 1320
caatcagtcg taaaacagaa gtcgtggaaa gcggatagaa agaatgttcg atttgacggg 1380
caagcatgtc tgctatgtgg cggattgcgg aggaattgca ctggagacca gcaaggttct 1440
catgaccaag aatatagcgg tgagtgagcg ggaagctcgg tttctgtcca gatcgaactc 1500
aaaactagtc cagccagtcg ctgtcgaaac taattaagta aatgagtttt tcatgttagt 1560
ttcgcgctga gcaacaatta agtttatgtt tcagttcggc ttagatttcg ctgaaggact 1620
tgccactttc aatcaatact ttagaacaaa atcaaaactc attctaatag cttggtgttc 1680
atcttttttt ttaatgataa gcattttgtc gtttatactt tttatatttc gatattaaac 1740
cacctatgaa gttcatttta atcgccagat aagcaatata ttgtgtaaat atttgtattc 1800
```

-8-

```
tttatcagga aattcaggga gacggggaag ttactatcta ctaaaagcca aacaatttct 1860
tacagtttta ctctctctac tctagagctt ggcactggcc gtcgttttac aacgtcgtga 1920
ctgggaaaac cctggcgtta cccaacttaa tcgccttgca gcacatcccc ctttcgccag 1980
ctggcgtaat agcgaagagg cccgcaccga tcgcccttcc caacagttgc gcagcctgaa 2040
tggcgaatgg cgcctgatgc ggtattttct ccttacgcat ctgtgcggta tttcacaccg 2100
catatggtgc actctcagta caatctgctc tgatgccgca tagttaagcc agccccgaca 2160
cccgccaaca cccgctgacg cgccctgacg ggcttgtctg ctcccggcat ccgcttacag 2220
acaagctgtg accgtctccg ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa 2280
acgcgcgaga cgaaagggcc tcgtgatacg cctattttta taggttaatg tcatgataat 2340
aatggtttct tagacgtcag gtggcacttt tcggggaaat gtgcgcggaa cccctatttg 2400
tttatttttc taaatacatt caaatatgta tccgctcatg agacaataac cctgataaat 2460
gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg tcgcccttat 2520
tccctttttt gcggcatttt gccttcctgt ttttgctcac ccagaaacgc tggtgaaagt 2580
```

<210> 24
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 24
aagaattcac catggatgat cagcgcgacc tt   32

<210> 25
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 25
aaaggatcct cacatgggga ctgggcccag a   31

<210> 26
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 26
aaaccatggg tcatgaacag aacca   25

<210> 27
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 27
tttgtcgact cagtcacctg agcaagg   27

-9-

```
<210> 28
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 28
aaaccatggt ctcattcctg cc                                                        22

<210> 29
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 29
tttgtcgacc taggaaatgt gccatcc                                                   27

<210> 30
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 30
tttagaattc accatggctt caacccgtgc caag                                           34

<210> 31
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 31
tttagtcgac tcagggaggt ggggcttgtc c                                              31

<210> 32
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 32
acccttgaat tcatggctcc cagcagcccc cggccc                                         36

<210> 33
<211> 39
<212> DNA
<213> Artificial Sequence
```

-10-

<220>
<223> synthesized

<400> 33   39
attaccggat cctcagggag gcgtggcttg tgtgttcgg

<210> 34
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 34   27
aaggtacccg tggagactgc cagagat

<210> 35
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 35   27
tttggatccc tatggccgga aggcctg

<210> 36
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 36   27
aagaattcct gtcagaatgg ccaccat

<210> 37
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 37   28
tttagatctt cactcagctc tggacggt

<210> 38
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 38

-11-

acccttgagc tcatggttgc tgggagcgac gcgggg 36

<210> 39
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 39
attaccggat ccttaaagaa cattcatata cagcacaata ca 42

<210> 40
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 40
tttagaattc accatggctt gcaattgtca gttg 34

<210> 41
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 41
tttagtcgac ctaaaggaag acggtctgtt c 31

<210> 42
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 42
acccttgaat ccatgggcca cacacggagg cag 33

<210> 43
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 43
attaccggat ccttatacag ggcgtacact ttcccttct 39

<210> 44
<211> 36

-12-

<210> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 44
tttagaattc accatggacc ccagatgcac catggg   36

<210> 45
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 45
tttagtcgac tcactctgca tttggttttg ctga   34

<210> 46
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 46
acccttgagc tcatggatcc ccagtgcact atg   33

<210> 47
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 47
attacccccg ggttaaaaac atgtatcact tttgtcgcat ga   42

<210> 48
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 48
aaaggatcca ccatgcagca gcccttcaat t   31

<210> 49
<211> 29
<212> DNA
<213> Artificial Sequence

<220>

-13-

<223> synthesized

<400> 49   29
tttggatcct tagagcttat ataagccga

<210> 50
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 50   34
aaagaattcg gtaccatgcc ggaggagggt tcgg

<210> 51
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> synthesized

<400> 51   29
tttggatcct caggggcgca cccactgca

<210> 52
<211> 17
<212> PRT
<213> Homo sapiens

<400> 52
Ile Ser Gln Ala Val His Ala Ala His Ala Glu Ile Asn Glu Ala Gly
 1   5   10   15
Arg

<210> 53
<211> 13
<212> PRT
<213> Influenza

<400> 53
Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys Leu Ala Thr
 1   5   10

<210> 54
<211> 11
<212> PRT
<213> M. tuberculosis

<400> 54
Lys Thr Ile Ala Thr Asp Glu Glu Ala Arg Arg
 1   5   10

-14-

```
<210> 55
<211> 15
<212> PRT
<213> C. trachomatis

<400> 55
Gln Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr Pro
 1               5               10                  15


<210> 56
<211> 13
<212> PRT
<213> Homo sapiens

<400> 56
Phe Val Arg Phe Asp Ser Asp Ala Ala Ser Gln Arg Met
 1               5               10
```

-15-